Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of the Claims:

1-17. (Canceled)

18. (Currently Amended) A method of cooling an axle assembly of a work vehicle, wherein the axle assembly includes an axle shaft, an axle housing configured to substantially surround the axle shaft, a cooling coil housed within the axle housing and having a passage therethrough[[,]] ~~and~~ outer and inner surfaces, the axle assembly further including a second cooling coil, wherein the cooling coil is disposed in a left axle housing and the second cooling coil is disposed in a right axle housing, a lubricating fluid disposed within the axle housing, and a cooling fluid disposed within the passage, and further wherein the lubricating fluid is of a higher temperature than is the outer surface of the coil and the outer surface of the coil is of a higher temperature than is the cooling fluid, the method comprising steps of:

removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of the coil wherein the outer surface of the coil is disposed between a brake assembly and a differential gearset, the coil being entirely disposed underneath the axle shaft;

removing the heat from the inner surface of the coil by circulating the cooling fluid through the passage;

removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of the second coil;

directing flow of cooling fluid to the coil by using a back pressure regulating valve to impose a pressure difference across the coil; and

removing the heat from the cooling fluid by circulating the cooling fluid through a heat exchanger.

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled) The method of 18, wherein the axle assembly includes a second cooling coil, and wherein the cooling coil is disposed in a left axle housing and the second cooling coil is disposed in a right axle housing, and wherein the method further comprises the step of:

removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of the second coil.

24. (Currently Amended) A method of cooling an axle assembly of a work vehicle, wherein the axle assembly includes an axle shaft, an axle housing configured to substantially surround the axle shaft, a cooling coil housed within the axle housing and having a passage therethrough[[,]] ~~and~~ outer and inner surfaces, the axle assembly further including a second cooling coil, wherein the cooling coil is disposed in a left axle housing and the second cooling coil is disposed in a right axle housing, a lubricating fluid disposed within the axle housing, and a cooling fluid disposed within the passage, and further wherein the lubricating fluid is of a higher temperature than is the outer surface of the coil and the outer surface of the coil is of a higher temperature than is the cooling fluid, the method comprising steps of:

removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of the second coil;

~~Removing~~ removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of the coil wherein the outer surface of the coil is disposed in one of a left axle housing and a right axle housing and the coil is disposed entirely underneath the axle shaft; and

removing the heat from the inner surface of the coil by circulating the cooling fluid through the passage.

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Canceled) The method of 24, wherein the axle assembly includes a second cooling coil, and wherein the cooling coil is disposed in a left axle housing and the second cooling coil is disposed in a right axle housing, and wherein the method further comprises the step of:

removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of the second coil.

29. (Currently Amended) A method of cooling an axle assembly of a work vehicle, wherein the axle assembly includes an axle shaft, an axle housing configured to substantially surround the axle shaft, a cooling coil housed within the axle housing and having a passage therethrough[[,]] ~~and~~ outer and inner surfaces, the axle assembly further including a second cooling coil, wherein the cooling coil is disposed in a left axle housing and the second cooling coil is disposed in a right axle housing, a lubricating fluid disposed within the axle housing, and a cooling fluid disposed within the passage, and further wherein the lubricating fluid is of a higher temperature

than is the outer surface of the coil and the outer surface of the coil is of a higher temperature than is the cooling fluid, the method comprising steps of:

transmitting heat from a wet multiple disk brake disposed in the axle housing to the lubricating fluid;

removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of the second coil;

removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of the coil, the outer surface of the coil being disposed between a brake assembly and a differential gearset and where the coil is disposed entirely underneath the axle shaft; and

removing the heat from the inner surface of the coil by circulating the ~~c~~ooling cooling fluid through the passage.

30. (Canceled)

31. (Canceled)

32. (Canceled)

33. (Canceled) The method of 29, wherein the axle assembly includes a second cooling coil, and wherein the cooling coil is disposed in a left axle housing and the second cooling coil is disposed in a right axle housing, and wherein the method further comprises the steps of:

removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of the second coil.